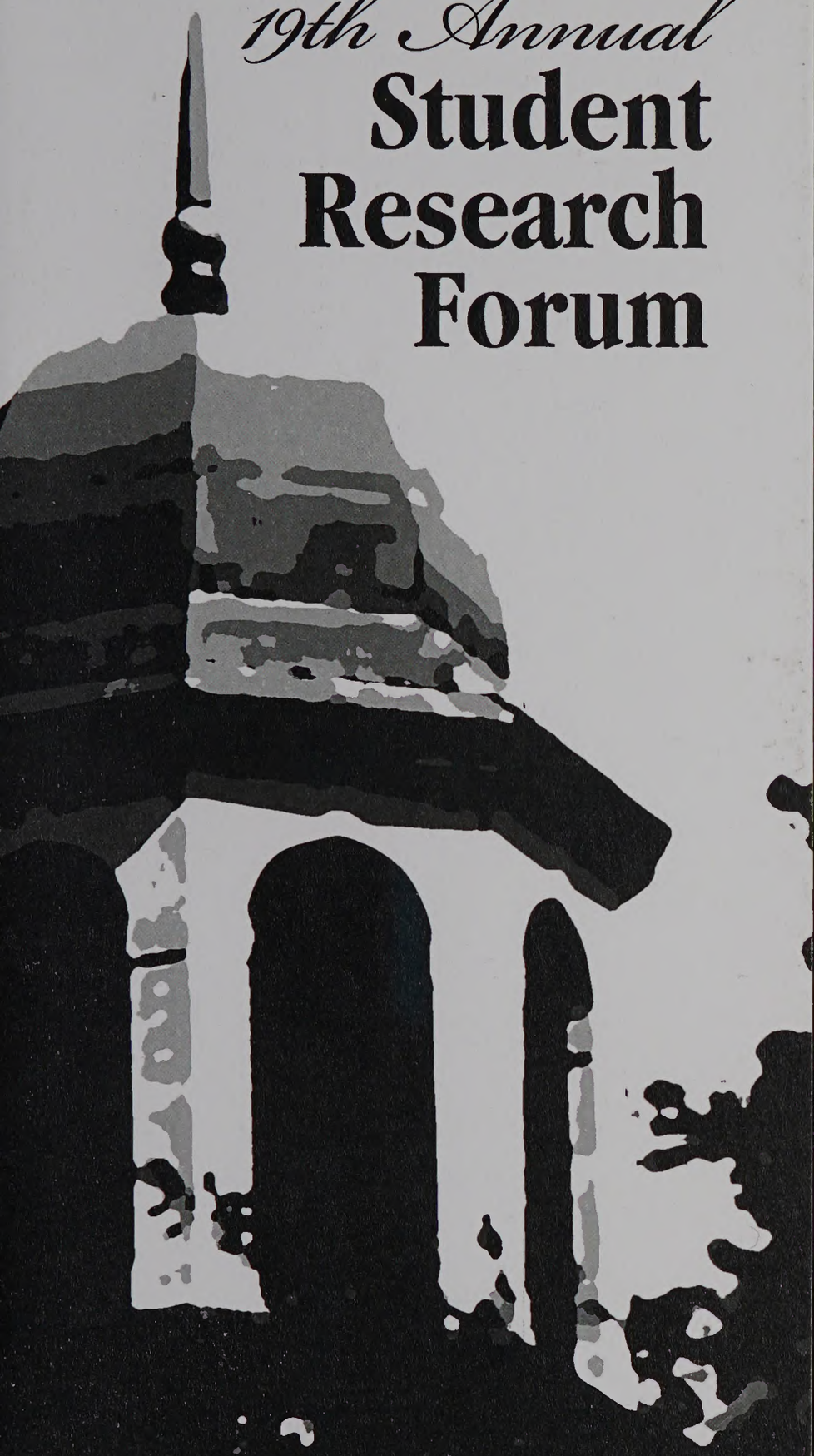
19th Annual

Student Research Forum



April 22 & 23, 2010

Centenary

19th Annual Student Research Forum

April 22 & 23, 2010

Posters
Mickle Hall
(2nd floor)
11:00 A.M.
April 22, 2010

Natural Sciences
Carlile Auditorium
(Mickle Hall first floor)
12:55 – 3:30 P.M.
April 23, 2010

Social Sciences
Kilpatrick Auditorium
(Smith Building)
1:25 – 3:00 P.M.
April 23, 2010

Humanities
Hurley Music Building, Rm. 201
1:55 – 3:10 P.M.
April 23, 2010

Student Research Forum

19th Annual Student Research Forum

SPONSORED BY

CENTENARY BOOK BAZAAR

AND THE PROVOST AND DEAN OF THE COLLEGE

JUDGES

DR. DAVID BIELER ..... *Associate Professor of Geology*
DR. GREG BUTCHER ..... *Assistant Professor of Neuroscience*
DR. SCOTT CHIRHART ..... *Associate Professor of Biology*
DR. CHRISTOPHER CIOCCHETTI ..... *Associate Professor of Philosophy*
DR. DANIEL HENDERSON ..... *Assistant Professor of Exercise Science*
DR. ROBERT PRICKETT ..... *Assistant Professor of Education*
DR. HELEN SIKES ..... *Professor of Accounting and Finance*
DR. ROSS SMITH ..... *Associate Professor of Music*

FROM THE DIRECTOR

The annual Student Research Forum provides Centenary students an opportunity to showcase their talents and experiences. They are to be commended for their efforts and quality work.

Thank you research participants and advisers for doing the projects and presenting your work in this forum.

Judges, thank you for your time and effort.

Special thanks is expressed to the Centenary Book Bazaar for their financial support. We greatly appreciate it!

Sincere thanks is given to the Provost and Dean of Centenary, Dr. Daniel Keck, for all of his financial support and encouragement.

Thank you Mrs. Jeannie Clements, Office of the Provost, and Ms. Sherry Heflin, Office of Marketing and Communications, for all of your work on planning the forum, designing/producing the brochure and the T-shirts, room arrangements, refreshments, etc. You are the best and much of our success is credited to you!

DR. MATTHEW WEEKS, *Director*
19th Annual Student Research Forum

POSTER PRESENTATIONS/JUDGING

* Presentation and judging will take place on Thursday, April 22nd at 11:10am in Mickle Hall on the second floor. In preparation of the judging, presenters should have their posters in place and ready at their assigned locations no later than 11:00 A.M.

Dallas Krentzel ..... Biochemistry
Kelly Reed ..... Biology
Kelly Reed (2) ..... Biology
Taylor Pahls ..... Biology
Joshua Phillips ..... Biology
Elise McMahen ..... Biology
Rustin Green ..... Biology
Brittany Bienvenu ..... Biology
Jennifer Flenniken ..... Biology
Ahmad Azzawe ..... Biology, Environmental Science
Marco Rajo ..... Neuroscience
John Cefalu ..... Neuroscience
Sunil Kaimootil ..... Biophysics
Daniel Martin ..... Health & Exercise Science

ORAL PRESENTATIONS/JUDGING

* Presentation and judging will take place on Friday, April 23rd. Locations and starting time vary by division.

NATURAL SCIENCES

in Carlile Auditorium

12:55 P.M. **Provost Daniel Keck** ..... **Introduction/Welcome**
1:00 P.M. Kathryn Hardey & Bradlee Robertson ..... Computer Science
1:10 P.M. Nolan Baker ..... Computer Science
1:20 P.M. David Moss ..... Geology
1:30 P.M. Amanda Krentzel ..... Neuroscience
1:40 P.M. Mark Moehle ..... Neuroscience
1:50 P.M. Kathryn Craigo ..... Chemistry
2:00 P.M. Matthew Blanchard ..... Chemistry
2:10 P.M. Rebecca McMahen ..... Chemistry

2:20 P.M. Ruth Litwinozicz.....Biology
2:30 P.M. Jonathan Carrere.....Biology
2:40 P.M. Marci McMahen.....Biology
2:50 P.M. Brandi Candler.....Biochemistry
3:00 P.M. Robert Grand.....Biochemistry
3:10 P.M. Everett Grimley.....Biophysics
3:20 P.M. John Cefalu.....Neuroscience

Natural Sciences Oral Presentations end about 3:30 P.M.

SOCIAL SCIENCES

in Kilpatrick Auditorium

1:25 P.M. Provost Daniel Keck.....Introduction/Welcome
1:30 P.M. Jessica Marquart.....Business
1:40 P.M. Michael Jarboe.....Business
1:50 P.M. Stephanie Beauvais.....Finance
2:00 P.M. Quinn Larwood.....Economics
2:10 P.M. Kenneshea Allums.....Psychology
2:20 P.M. Anne Zapczynski.....Psychology
2:30 P.M. John Webb.....Psychology
2:40 P.M. Nicholas Akins.....Sociology
2:50 P.M. Kenneshea Allums.....Sociology

Social Science Oral Presentations end about 3:00 P.M.

HUMANITIES

in Hurley Music Building, Room 201

1:55 P.M. Provost Daniel Keck.....Introduction/Welcome
2:00 P.M. Sarah Savage.....History
2:10 P.M. Spencer Bostwick.....History
2:20 P.M. Janeane Gorcyca.....History
2:30 P.M. Christene Paxton.....Religious Studies
2:40 P.M. Marissa Teauseau.....Religious Studies
2:50 P.M. Rachel Stevens.....Religious Studies
3:00 P.M. Rachel McConnell-Switzer.....Religious Studies

Humanities Oral Presentations end about 3:10 P.M.

POSTERS

INVESTIGATION OF THE CONSERVED RD POCKET IN THE CK1 PROTEIN KINASE FAMILY

*DALLAS KRENTZEL[1] , WITH NOOR AZZAWE, MICHAELA BERG, CAITLIN CAVARRA, JOHN CEFALU, JORDAN DAY, ROB GRAND, SARAH KURUVILLA, RUTH LITWINOWITZ, COLIN MCRAE, MARCO RAJO, KELLY REED, TYLER SMITH, GARRETT VICK, HEATHER WENSLER

Researcher Advisors: Dr. Cynthia J. Brame[1] & Dr. Lucy C. Robinson[2]

[1]Department of Biology
Centenary College of Louisiana

[2]Louisiana State University Health Sciences Center
Shreveport, LA

Members of the CK1 subfamily of protein kinases regulate cell differentiation and proliferation, chromosome segregation, and circadian rhythm. Like all protein kinases, CK1s catalyze transferral of phosphate from ATP to a protein substrate. One of the family-specific features of CK1 kinases is a long activation loop and an RD pocket, an area of positively charged residues on the surface of the enzyme. In some kinase families, phosphorylation within the activation loop may activate the enzyme via binding of the phosphorylated residue to the RD pocket. We hypothesize that the RD pocket is involved in inhibiting CK1 kinases by binding phosphorylated residues from the activation loop. Here we have used a model CK1, YCK2, from the yeast *Saccharomyces cerevisiae*. Each of the three positively charged residues comprising the RD pocket was mutated to a negatively charged glutamate and a neutral glutamine via site-directed mutagenesis. We predicted that substitution of neutral residues would slightly decrease YCK2 activity while substitution of negative residues will dramatically decrease YCK2 activity. Plasmids containing the mutant alleles were cloned, isolated, and sequenced to confirm introduction of the mutations. The mutant YCK2 alleles were then expressed in yeast. Effect on function was assessed by complementation tests and microscopy.

EFFECTS OF VARIOUS FERTILIZERS ON EARTHWORM (*LUMBRICUS TERRESTRIS*) METABOLISM AND SOIL PH

KELLY REED

Research Advisor: Dr. Beth Leuck

Department of Biology
Centenary College of Louisiana

I compared the effects of fertilizer with high nitrogen content to fertilizer with lower nitrogen content on earthworm CO_2 production and soil acidity. I hypothesized that the fertilizer with high nitrogen content would decrease the pH of the soil and that this drop in pH would decrease the earthworms' metabolic rate. Furthermore, I hypothesized that there would be no difference in earthworm metabolism and soil acidity between the organic fertilizer and the soil with no fertilizer. Earthworms were divided into four groups and were exposed to a high nitrogen content fertilizer, a lower nitrogen content fertilizer, organic fertilizer, or no fertilizer for a period of six days. Soil pH was measured

on day one and day six of the experiment, and three replications were carried out. Although the data was not significantly different, the group exposed to the high nitrogen fertilizer had the lowest CO_2 emission followed by the group exposed to lower nitrogen fertilizer, the group exposed to organic fertilizer, and the control group, which had the greatest CO_2 emission. Soil acidity decreased for each group except those in the organic fertilizer.

THYMOQUINONE(TQ) AND CISPLATIN(CDDP) IN A NON-SMALL CELL LUNG CANCER(NSCLC) XENOGRAFT MODEL

*KELLY REED, SYED H. JAFRI, MD, JONATHAN GLASS, MD, RUNHUA SHI, MD/PHD, SONGLIN ZHANG, MD/PHD, MISTY PRINC, & HEATHER KLEINER-HANCOCK, PHD

Louisiana State University Health Sciences Center
Shreveport, LA

Lung cancer is the most common cause of cancer-related deaths in the United States. Cisplatin is a common chemotherapy drug used in the treatment of non-small cell lung cancer (NSCLS). Thymoquinone (TQ) is a naturally occurring antioxidant found in the *Nigella sativus* plant; there is evidence to suggest that TQ has various anti-cancer effects. In this study, thymoquinone was used in combination with cisplatin in a mouse xenograft model using a NSCLC cell line NCI-H460. The mice were divided into six groups each receiving subcutaneous injections of 5mg/kg of TQ, 20mg/kg of TQ, 2.5mg/kg of cisplatin, a combination of 2.5mg/kg cisplatin and 5mg/kg TQ, 2.5mg/kg cisplatin and 20mg/kg TQ, and a control group that received no injections of cisplatin and TQ. The mice were injected three times a week and the study was carried out for three weeks. TQ alone at 5mg/kg and 20mg/kg did not significantly reduce tumor size. However, cisplatin at 2.5mg/kg reduced tumor size significantly as did the combinations of cisplatin and TQ. The combination of 2.5mg/kg cisplatin and 5mg/kg TQ reduced tumor size by 59% and the 2.5mg/kg cisplatin and 20mg/kg TQ caused a 79% reduction in tumor size.

DOES PHOSPHORYLATION OF AN ACTIVATION LOOP SERINE INHIBIT CK1 ACTIVITY?

*TAYLOR PAHLS, AHMAD AZZAWE, CHRIS BRYAN, BETHANY JOSEPH, MK ORSULAK, AND JOSHUA PHILLIPS

Researcher Advisors: Dr. Cynthia J. Brame[1] & Dr. Lucy C. Robinson[2]

[1]Department of Biology
Centenary College of Louisiana

[2]Louisiana State University Health Sciences Center
Shreveport, LA

The CK1 protein kinase family is vital to biological function because these protein kinases regulate chromosome segregation, circadian rhythms, cell division, and cell differentiation. These proteins have a long activation loop, and phosphorylation of this loop may regulate protein activity. We hypothesized that the amino acid serine located within the activation loop (S243) is an inhibitory phosphorylation site. Several mutations were created at this spot via site-directed mutagenesis using YCK2 as a model of the CK1 protein family. The serine was mutated to alanine, aspartate, and tyrosine. Our hypothesis predicts that the alanine substitution will increase YCK2 activity because alanine has no hydroxyl group and therefore cannot be phosphorylated. We further predict that aspartate substitution will increase YCK2 activity because the negatively charged carboxyl group found on aspartate allows it to mimic phosphorylated serine. Finally, we predict that the tyrosine substitution will have no effect on Yck2 activity because tyrosine has a hydroxyl group that can be phosphorylated. We cloned the three mutant alleles and expressed them in the yeast *Saccharomyces cerevisiae* to examine YCK2 function and localization.

THE EFFECT OF ANTIDEPRESSANTS ON FOOD INTAKE AND WEIGHT OF MICE (*MUS MUSCULUS*)

JOSHUA PHILLIPS

Research Advisor: Dr. Beth Leuck

Department of Biology
Centenary College of Louisiana

Antidepressants like Zoloft and Buspar may be excreted in human urine and end up in the water system because they are not treated using current sewage methods. These drugs are selective serotonin reuptake inhibitors which inhibit serotonin transporter proteins in the brain, prolonging the amount of time serotonin remains in a synapse. Since serotonin is an anorexigenic neurotransmitter, it can lead to decreased appetite causing a reduction in food intake and weight. I hypothesized that if a mouse is given an antidepressant, then its food intake and weight will decrease. In addition, a cocktail of antidepressants will cause a greater decrease than an individual antidepressant. Mice were exposed to a low dosage of a placebo, Zoloft, Buspar, and a cocktail of Zoloft and Buspar. The food intake, weight, and oxygen consumption of the mice were measured. The mice's food intake was unaffected, but the weight and oxygen consumption of the mice given antidepressants increased. Since the food intake was approximately the same for all groups, the mice given antidepressants may have used the extra energy from their high oxygen consumption for anabolism to put on more weight. These results warrant further testing of pharmaceuticals in the environment.

DOES PHOSPHORYLATION OF A CONSERVED TYROSINE REGULATE CK1 ACTIVITY?

*ELISE MCMAHEN, WESLEY CARLISLE, JONATHAN CARRERE, & MARCI MCMAHEN

Researcher Advisors: Dr. Cynthia J. Brame[1] & Dr. Lucy C. Robinson[2]

[1]Department of Biology
Centenary College of Louisiana

[2]Louisiana State University Health Sciences Center
Shreveport, LA

A conserved gene is a gene that has remained unchanged throughout evolution so that its sequence is similar in multiple species; conservation occurs if the organism cannot tolerate loss of the gene's function. These genes encode various conserved proteins, including protein kinases, which are enzymes that catalyzé the phosphorylation and subsequent activation of other proteins. Specifically, we are investigating the conserved features within the CK1 protein kinase subfamily using a model CK1 called YCK2. Previous studies have suggested that CK1s may undergo inhibitory phosphorylation; however, where this phosphorylation takes place is unknown. We chose to investigate the hypothesis that tyrosine-225, located within a conserved sequence at the beginning of the activation loop, undergoes a phosphorylation that inhibits CK1 activity. We performed two complementary experiments. Using site-directed mutagenesis, we substituted phenylalanine or glutamic acid for the tyrosine. We hypothesize that substituting glutamic acid for tyrosine will mimic phosphorylation of tyrosine and will result in significant inhibition of enzyme activity. Substituting phenylalanine for tyrosine will serve as a negative control for the reaction because it has similar properties as tyrosine yet cannot be phosphorylated. We expect our negative control to have no effect on enzyme activity, because no inhibition will be involved.

THE EFFECTS OF DIFFERENT SPECTRACIDE® CONCENTRATIONS ON MASS-SPECIFIC METABOLIC RATE OF CHINESE FIRE BELLY NEWTS (*CYNOPS ORIENTALIS*)

RUSTIN GREEN

Research Advisor: Dr. Beth Leuck

Department of Biology
Centenary College of Louisiana

The high solubility of herbicides in water can cause toxic conditions in aquatic environments next to agricultural areas where herbicides are used. Diquat dibromide, an active ingredient in several commercial herbicides, is a chemical that causes mutations and death in amphibians exposed to high concentrations. The purpose of this experiment was to determine the effects of low concentrations of Spectracide® (active ingredient diquat dibromide) on the mass-specific metabolic rate of newts (*Cynops orientalis*). The newts were exposed to low concentrations of Spectracide® at the same temperature and their CO_2 production was measured. The newts were tested at a cold temperature to determine if exposure to the herbicide would cause an increase in metabolic rate compared to the low metabolic rate expected under cold conditions. The CO_2 measurements were used to calculate and graph the mass-specific metabolic rate. When these data were compared to control data the

newts exposed to the herbicide concentrations had increased metabolic rates. The results suggest that short term exposure to low herbicide concentrations can cause metabolic stress.

EFFECT OF GLYPHOSATE ON THE METABOLIC RATE OF EMPEROR SCORPIONS (*PANDINUS IMPERATOR*)

BRITTANY BIENVENU

Research Advisor: Dr. Beth Leuck

Department of Biology
Centenary College of Louisiana

Emperor scorpions (*Pandinus imperator*) are native to Africa. In many areas pesticides such as RoundUp are being used for weed control. Emperor scorpions have recently been listed as a threatened species, prompting investigations into the effect of pesticide exposure on scorpions' health. I hypothesized that if emperor scorpions ingest glyphosate (the active ingredient in RoundUp) their metabolic rates will increase more rapidly as the ambient temperature increases than scorpions not exposed to glyphosate. I tested this by measuring the CO_2 production of scorpions at 22°, 29°, and 34°C after the scorpions ingested a cricket. CO_2 production rate comparisons were made between scorpions that ingested control crickets and scorpions that ingested glyphosate-saturated crickets. The rate of CO_2 production after completion of a meal was higher at higher temperature but was not significantly higher after the ingestion of glyphosate-saturated crickets compared to scorpions that ingested the control crickets. Although glyphosate may have other unknown effects, my data indicate that it does not significantly affect the metabolic rate of emperor scorpions.

THE EFFECTS OF VARIOUS CONCENTRATIONS OF ESTRADIOL ON THE REPRODUCTIVE EFFICIENCY OF *DROSOPHILA MELANOGASTER*

JENNIFER FLENNIKEN

Research Advisor: Dr. Beth Leuck

Department of Biology
Centenary College of Louisiana

Environmental estrogens are endocrine disrupters found in the environment that mimic the hormone estrogen. To determine the effects of environmental estrogens, I exposed *Drosophila melanogaster* to varying concentrations of estradiol. My hypothesis stated that estradiol would negatively impact the reproductive efficiency of *Drosophila* and that male to female ratio would decrease with increasing concentration of estradiol. The following concentrations of estradiol were used in replicates of three: 0.01 mg, 0.1 mg, and a control. A significant difference existed between the total offspring of the control group and the high concentration group. The low concentration group did not significantly differ from either of the other groups. Concerning male to female ratio, the values obtained for the control and the low concentration group did not significantly differ. The control as compared to the high concentration group exhibited a significant difference, as did the low concentration groups as compared to the high concentration groups.

These results suggest that a high concentration of estradiol affects male to female ratio as hypothesized. The data obtained for the group exposed to the low concentration were unexpected, and further experimentation is warranted. However, overall, estradiol produces a definitive effect on the reproductive efficiency of *Drosophila melanogaster*.

THE EFFECT OF LOW CONCENTRATION COPPER SULFATE ON THE SHELL GROWTH AND BODY MASS OF THE MYSTERY SNAIL (*POMACEA BRIDGESII*)

AHMAD AZZAWE

Research Advisor: Dr. Beth Leuck

Department of Biology
Centenary College of Louisiana

The mystery snail (*Pomacea bridgesii*) and other mollusks are often removed as pests using the chemical control of copper sulfate. Many mollusks are often the secondary hosts of many human parasites; therefore elimination of the snails is beneficial in third-world countries. Due to low expense and availability of copper sulfate, it is often a preferred chemical to control snails and other various freshwater pests. Often, high concentrations of these chemicals are used with the potential to pollute non-target freshwater species in an attempt to eradicate invasive snail species, which may indirectly disrupt food systems within these freshwater environments. This experiment determined the effect of a low concentration copper sulfate on shell growth and body mass, two potential indicators of health of the snails. Low concentrations of copper sulfate (0.025-0.10 mg/l) had very strong effects on body mass and shell growth over a period of approximately 30 days, significantly decreasing the rate of shell growth and body mass with these low concentrations. These lower concentrations could potentially be used for long-term chemical control to potentially reduce pollution of non-target freshwater environments.

PROTEIN KINASE M ZETA (PKMζ) A MODULATOR OF LIGHT-INDUCED PHASE SHIFTS

*MARCO ANTONIO RAJO, DEANNA APPLE, & DR. GREG BUTCHER

Department of Biology
Centenary College of Louisiana

The suprachiasmatic nuclei (SCN) are bilateral structures in the mammalian hypothalamus and function as central regulators of circadian rhythmicity. This rhythmicity is brought about by transcriptional/translation feedback loops involving a specific set of clock proteins, which are influenced by photic and nonphotic cues. Photic input from the retina activates a number of signaling cascades, including protein kinase C (PKC). Previously, this kinase has been reported to contribute to light-induced behavioral phase shifts in hamsters and mice. As different PKC isoforms likely contribute to these divergent effects, we sought to examine one such isoform, PKMζ. While typical PKC isoforms contain both catalytic and regulatory domains, PKMζ consists of the independent, atypical PKCζ catalytic region cleaved from the regulatory domain. This constitutively active kinase maintains long-term potentiation in the hippocampus by influencing postsynaptic AMPA receptors.

As AMPA signaling has been reported to influence phase specific expression of clock genes, within the SCN PKMζ may play a significant role regulating these events.

NITRITE RELEASE AND UPTAKE FROM J774 MACROPHAGES

*SUNIL KAIMOOTIL, CLAYTON NEWELL, & DR. JUAN RODRIGUEZ

Department of Physics
Centenary College of Louisiana

Activated macrophages are known to produce large concentrations of nitrite from the synthesis of nitric oxide. With the recent discovery that nitrite is a biologically active substance, one question that gains more significance is how macrophages hold the nitrite they produce. In this respect, the question of how quickly macrophages internalize or externalize the anion becomes of relevance. Here we report on experiments that characterize the kinetics of nitrite uptake into, and release from the murine J774 macrophage cell line. Cells were exposed to 100 μM of N_{15}-labeled nitrite and intracellular or extracellular concentrations measured as a function of time using a mass spectrometric method developed in our lab. Our results show that transport of the nitrite in and out of the cells is on the order of five minutes or less, and that the ensuing intracellular and extracellular concentrations of the anion are similar. The results suggest that macrophage nitrite uptake and release is dominated by passive transport.

RESPIRATORY EFFICIENCY WHILE CYCLING AT DIFFERENT CADENCES

DANIEL MARTIN

Research Advisor: Dr. Daniel Henderson

Department of Health and Exercise Science
Centenary College of Louisiana

The prevailing theory on cycling cadence efficiency is that is occurs at low (55-65) rpm. The anecdotal evidence of trained cyclists shows a much higher cadence prominent in their training and racing. Many time trialists choose to spin around 85-95 rpm while triathletes often adopt a higher cadence of 95-110 to deal with lactic acid buildup. The purpose of this experiment is to measure multiple variables of a trained athlete working at a specific workload (watts) at three different cadences. There will be a slow cadence of 80 rpm, a medium/natural cadence of 95 rpm, and a high cadence of 110 rpm. Observing the subjects work at the specific power output while using all three cadences will show if total oxygen inhaled, respiratory rate, or tidal volume increases. The data will show where each athlete's speed of pedal stroke is most efficient at each power output.

NATURAL SCIENCE ORAL PRESENTATIONS

ACADEMIC DEGREE DATABASE ELECTRONIC RESOURCE

KATHRYN HARDEY & BRADLEE ROBERTSON

Research Advisor: Dr. Mark Goadrich

Department of Mathematics
Centenary College of Louisiana

A degree plan allows for students to manage themselves and gain insight into the requirements they are lacking for graduation. In the age of computerization, where everyone has become accustom to instance results, the current paper system leaves many students feeling frustrated. In an effort to help the students stay organized and informed, the electronic degree plan allows for users to create a degree plan on the Internet and edit it freely. Once created, the electronic degree plan can be edited to reflect changes in majors and minors, courses earned and dropped, and changes in degree type. Based on their input, the system then displays for the user what requirements are missing. With an electric degree plan, advisers will be granted permission to view their advisees' degree plans, and then will be able to clearly see what credits are lacking and be a more effective guide. A computerized degree plan, with a simple to use interface, can help a student and their adviser stay aware of their college progress.

SMARTSWEEPER: LEARNING TO PLAY MINESWEEPER WITH NEURAL NETWORKS

NOLAN BAKER

Research Advisor: Dr. Mark Goadrich

Department of Mathematics
Centenary College of Louisiana

NP-complete problems have been the focus of a great deal of research in the areas of mathematics and computer science. Minesweeper is one such problem, and playing requires a great deal of logical and probabilistic reasoning. Given the complexities, developing strategies for playing the game efficiently can be quite a cumbersome task. Our algorithm uses a neural network to learn these strategies from experience. The resulting rules not only significantly outperform the average human player, but also previous machine learning techniques.

SERRATION VARIABILITY OF TEETH IN GREAT WHITE SHARK JAWS

DAVID K. MOSS & JEFFREY G. AGNEW

Department of Geology
Centenary College of Louisiana

Serrated teeth are common in many modern and fossil carnivores, such as sharks and theropod dinosaurs. However, little is known about their variability and function. Our work examines the differences in mean serration sizes of modern and fossil great white sharks, *Charcarodon carcharias*. Using 47 modern and 17 Pliocene *C. carcharias* teeth, we performed a three-way ANOVA to test for difference between mean serration widths of modern and Pliocene, upper and lower, and anterior and lateral teeth. Pliocene teeth have significantly coarser serrations than modern teeth ($p<0.001$). Significant differences also exist between upper and lower teeth ($p<0.001$) and anterior and lateral teeth ($p<0.001$). We believe these differences are caused by selective pressures for increased feeding efficiency. For example, lower teeth may have finer serrations than upper teeth because lower teeth are narrower and more likely to break during feeding. Selective pressures for smaller serrations may be stronger in lower teeth than upper teeth because smaller serrations decrease the chances of binding in flesh and make the teeth less likely to break during feeding.

OXYCODONE TREATMENT WITHDRAWAL EFFECTS ON THE MU OPIOID RECEPTOR IN PRENATALLY TREATED RAT PUPS

AMANDA KRENTZEL & DR. LISA SCHROTT

Research Advisor: Dr. Beth Leuck

Dept. of Pharmacology, Toxicology, and Neuroscience
Louisiana State University Health Sciences Center
Shreveport, LA

Oxycodone is the most common illicitly abused prescription narcotic in the United States since its introduction in 1996. Little is known about the developmental effects opioid abuse can have on the developing fetus, and even less is known about the neurological effects. In this study, two treatment groups, oxycodone and water, were prenatally administered to rat pups to stimulate the effects of withdrawal from prenatal exposure after the pups are born. On post natal days one and two, pups were sacrificed and their cortex and hippocampi removed to run protein analysis using a Western blot. Optical density levels of mu opioid bands at 50 kD and GAPDH as a loading control were measured using Image J. For the cortical samples, a significant difference was found for prenatal treatment ($F1,18 = 17.38$, $p <0.009$), age ($F1,18 = 26.46$, $p <0.002$), and treatment x age interaction ($F1,18 = 16.71$, $p <0.01$), with optical density of the mu band increasing with treatment and age. No significant trends were found for the hippocampus. From this, it can be determined that upregulation of mu opioid receptor due to oxycodone withdrawal becomes prevalent on postnatal day two for the cortex.

THE EFFECTS OF METHAMPHETAMINE SELF-ADMINISTRATION AND WITHDRAWAL ON AGGRESSION IN MALE RATS

*MARK MOEHLE, G. F. GUERIN, & N. E. GOEDERS

Louisiana State University Health Sciences Center
Shreveport, LA

Methamphetamine (METH) is associated with marked changes in behavior. Several news, sociological, and Department of Justice reports indicate that METH use is associated with an increase in violent behaviors. However, there is a lack of research concerning METH and aggression and a model has not been used to test the effects of METH self-administration on aggression. This experiment applied an established model of aggression testing at several time-points following long access METH self-administration. Male Wistar rats were implanted with jugular catheters and allowed to self-administer METH (0.06 mg/kg/inf) for 6 hours a day five days a week. Aggression testing was conducted every two weeks during self-administration. Our data showed a marked decrease in aggression one hour after the end of the self-administration session, but an increase in aggression two hours after self-administration ended. This increase in aggression persisted forty-eight hours after self-administration ended. This indicates that METH intoxication may decrease aggression, while early and late withdrawal from METH may increase aggression.

SYNTHESIS AND IN VIVO TESTING OF PERFLUOROALKYL ANALGESIC DERIVATIVES

KATHRYN E. CRAIGO

Research Advisors: Dr. Joshua D. Lawrence[1] & Dr. Scott E. Chirhart[2]
Centenary College of Louisiana

Department of Chemistry[1]
Department of Biology[2]
Centenary College of Louisiana

Many biologically-active compounds contain perfluoroalkyl functional groups, one subset being trifluoromethyl-substituted aromatic moieties. Synthesis of perfluoroalkylarenes via C-H bond activation has the potential to allow greatly increased flexibility in producing these compounds. We have demonstrated that $FeI(C_nF_{2n+1})(CO)_4$ and AgO_2CCF_3 in dichloromethane solvent is a relatively efficient system for installing perfluoroalkyl groups on aromatic compounds. We sought to use this methodology to synthesize fluorinated derivatives of known analgesics. Although we were able to prepare the perfluoroalkyl analog of ibuprofen in a single step from a commercially-available compound, the product could not be separated from unreacted starting material. Pure material could be prepared by perfluoroalkylating an ester-protected derivative and then deprotecting the ester to yield the ibuprofen analog. This ester was also perfluoroalkylated with a perfluorooctyl functional group. The analgesic efficacy of the perfluoroalkyl ibuprofen analog and commercial ibuprofen was compared in a live animal model. A perfluoroalkyl derivative of acetaminophen could not be directly synthesized directly from acetaminophen, but an ether-protected form of acetaminophen was perfluoroalkylated in reasonable yield. We have not yet been able to remove the ether protecting group, however.

Nanostructures in a Simple Ethanol Burner

MATTHEW T. BLANCHARD & DR. THOMAS M. TICICH

Research Advisor: Dr. Beth Leuck

Department of Chemistry
Centenary College of Louisiana

Carbon nanotubes have been the subject of intense study due to their unique properties. Traditional methods for their synthesis are time intensive and involve complex equipment and materials. This work builds on our previous work on the synthesis of carbon nanotubes in a simple ethanol burner flame, which provides the appropriate temperature and chemical environment. The catalyst is provided either by a metal foil subject to a pretreatment process or a metal salt deposited on a metal substrate. One portion of this work explores the effect of the nature of the fuel on nanostructure yield while using a stainless steel metal foil catalyst. Scanning Electron Microscopy images reveal that ethanol provides the best yields, with fewer nanostructures produced by methanol and acetone flames and none produced by isopropyl alcohol, hexane and lamp oil flames. These results show that flame temperature plays a role but that the flame must also be slightly fuel rich without soot production to produce carbon nanostructures. When compared with prepared metal foils, catalysts derived from iron and nickel salts produced a more uniform distribution of nanostructure sizes. Catalysts from both salts gave rise to small diameter nanostructures with somewhat longer structures obtained from nickel.

Perfluoroalkylation Reactions in Air

REBECCA MCMAHEN

Research Advisor: Dr. Joshua Lawrence

Department of Chemistry
Centenary College of Louisiana

Perfluoroalkyl groups, especially as trifluoromethyl-substituted aromatic substructures, are common functionalities in man-made biologically-active compounds. We have previously reported an arene-limiting perfluoroalkylation procedure using anaerobic and anhydrous conditions. We have found conditions that give equally good yields when the reaction is performed in air and with wet solvent. The scope of the reaction was expanded to include branched perfluoroalkyl chains. It was observed that electron-rich arenes were perfluoroalkylated faster than electron-deficient arenes. Furthermore, no kinetic isotope effect was observed for the perfluoroalkylation reaction. A proposed mechanism based on these findings will be discussed.

OIL EMULSIONS AS POSSIBLE RESUSCITATION FLUIDS

*EVERETT GRIMLEY[1], MATT BLAM[1], DR .JUAN RODREGUIZ[1], & MICHAEL ARMBRUSTER[2]

Department of Physics[1]
Centenary College of Louisiana

Tulane University[2]

Resuscitation fluids serve in the medical field as substitutes for bodily fluids lost by various means. We have begun developing, by means of the fundamental sciences of physics and chemistry, oil emulsions with enhanced capacities for O_2 transport in hopes of developing an improved resuscitation fluid for severe blood loss. Using the method here described, we have been able to carefully analyze the extent of the success of those fluids in carrying O_2.

MICROSATELLITE VARIATION IN FOREST AND GRASSLAND *PEROMYSCUS MANICULATUS*

*RUTH LITWINOWICZ[1], SCOTT E. CHIRHART[1], & IRA F. GREENBAUM[2]

Department of Biology[1]
Centenary College of Louisiana

Department of Biology[2]
Texas A&M University

Peromyscus maniculatus has historically been divided into two major morphologic and ecologic types. Forest forms range through the Appalachian Mountains from northern Georgia northward to Labrador, across the continent in Canadian forests, and southward through the Rocky Mountains and the mountains and coast of the Pacific Northwest. Grassland forms generally occupy the prairies and grasslands of the continental interior and extend into the deserts of the western and southwestern United States. In areas where these forms meet, they generally maintain morphological and ecological distinction. Initial mtDNA and chromosomal data, however, support the hypothesis that the central-grassland and eastern-forest deer mice represent separate phylogenetic lineages. To further evaluate the specific validity and evolutionary history of these two forms, we assessed sequence variation at the ND3/ND4L/ND4 region of the mtDNA and 9 dinucleotide microsatellite markers for 29 individuals from four localities of the eastern forest form and for 20 individuals from a single locality of the central grassland form. All analyses of the mtDNA data yielded entirely concordant results separating the forest from grassland deer mice. These and the previously reported mtDNA and chromosomal data support the hypothesis that northeastern *P. maniculatus* contains at least two species.

THE EFFECTS OF METHYLIN AND DIAZEPAM ON TEMPERATURE TOLERANCES IN *GAMBUSIA AFFINIS*

JONATHAN CARRERE & DR. BETH LEUCK

Research Advisor: Dr. Beth Leuck

Department of Biology
Centenary College of Louisiana

The environmental temperature is a major factor influencing the physiology of fish; therefore, temperature tolerance is a major concern. The thermal tolerance of fish may be affected by exposure to various chemicals, including human pharmaceuticals. Recent studies show that a wide range of pharmaceuticals have been detected in the environment at biologically active concentrations. The current study focuses on the physiological effects of stimulants and depressants on fish. *Gambusia affinis* (mosquito fish) were separated into a control group, methylin (stimulant) group, diazepam (depressant) group, and a cocktail group containing both pharmaceuticals. The fish were exposed to the pharmaceuticals at a concentration of 0.2 mg/L for 24 hours, 3 weeks, and 6 weeks. Fish were then tested in gradually increasing water temperatures until they failed to remain in a dorso-ventral orientation. The temperature at which this occurred was recorded and corresponds to the critical thermal maximum value. The 24 hour exposure time yielded temperature tolerance data that were not statistically different from a control group, but the fish exposed to the pharmaceuticals for longer periods of time demonstrated different temperature tolerances than the control group.

THE EFFECTS OF CHLORINE ON *GAMBUSIA AFFINIS* AT VARIOUS TEMPERATURES

MARCI MCMAHEN

Department of Biology
Centenary College of Louisiana

Chlorine is an important water purification chemical and, biochemically, acts as an irritant to respiratory surfaces and mucous membranes. One disadvantage of chlorinated water is that it is washed into streams, ponds, and lakes where animals can come into contact with the chemical in their natural environment. *Gambusia affinis* is a freshwater fish species native to the southern and eastern United States and known for its remarkable hardiness. These fish, often called mosquito fish, are ideal for studying the effects of chlorine given their ability to withstand harsh conditions such as hypoxic waters, high salinity, and wide temperature ranges. In the presence of chlorine, I hypothesized that respiration levels of the mosquito fish would increase as the concentration of chlorine increased and that mosquito fish exposed to chlorine would produce more CO_2 at 32 °C, followed by 13 °C, and then 23 °C. Within each temperature group, CO_2 production was greater the higher the concentration of Cl_2. There was significant difference between the control concentration and both the higher and lower concentrations at each temperature and between each temperature within each concentration group including the control. There was no significant difference between the high concentration and the low concentration at each temperature.

Characterization of a Fluorescent Glucose Analog for Biochemical and Biophysical Applications

BRANDI CANDLER

Research Advisor: Dr. Troy Messina

Department of Physics
Centenary College of Louisiana

The molecule 2-nbdg is a glucose molecule with an attachment that causes it to be fluorescent. The main use of 2-nbdg is as a monitor for glucose uptake in cells, however not much has been done to observe how 2-nbdg interacts in solution. In our research we looked at finding a way to map out the capabilities of proticity and the dielectric of various solutions in regards to the extinction coefficient, quantum yield, spectral shift, and lifetime of the fluorescence. The extinction coefficient and quantum yield appear to have no dependenc with regards to proticity or the dielectric. The spectral shift and the lifetime both seem to have a dependence on proticity and the dielectric. We will also present our initial work at applying quantitative models to these dependences.

Hypoxia-Inducible Factor-1α (HIF-1α) Mediates Chemokine Receptor CXCR4 Expression under Hypoxia in Human Pancreatic Cancer Cell Line CFPAC-1

ROBERT H. GRAND[1], JUN CHUNG, PH.D.[2], BENJAMIN D.L. LI, M.D.[1,3], QUYEN D. CHU, M.D.[1,3]*

Research Advisor: Dr. Beth Leuck

Departments of Surgery[1], Biochemistry[2], and the Feist-Weiller Cancer Center[3], Louisiana State University Health Sciences Center in Shreveport, Shreveport, Louisiana

Hypoxia is a common characteristic of many aggressive tumors including pancreatic cancer. The chemokine receptor CXCR4 has been linked to the invasion and metastasis of many types of cancers. How CXCR4 expression is regulated under the hypoxic condition in pancreatic cancer is still not clear. We hypothesize that in a human pancreatic cancer cell line CFPAC-1, CXCR4 is overexpressed under hypoxia and this overexpression is mediated by the hypoxia-inducible factor-1α (HIF-1α). Human pancreatic cancer cell line CFPAC-1 and HeLa cells were exposed to variable hypoxic and normoxic conditions over specified times. Nuclear and whole cell lysates of the samples were taken and analyzed by Western blot for CXCR4 and HIF-1α expressions. The cells were then exposed to doses of YC-1, a drug known to inhibit HIF-1α expression, under normoxia and 24 hr hypoxia. HIF-1α and CXCR4 expression were then analyzed as previously described. We found that longer exposure to hypoxia yielded increasing levels of HIF-1α and CXCR4 for both cell lines. Furthermore, treatment of both with YC-1 yielded decreasing HIF-1α protein levels which corresponded to a reduction of CXCR4 expression. This strongly suggests that hypoxia induces HIF-1α which mediates CXCR4 expression. These findings may be used to design target specific therapy against pancreatic cancers.

Expression Studies of Hu-Cox-2-Luc Promoters in ARPE-19 Cells

*JOHN CEFALU[1], DR. P.K. MUKHERJEE[2], & DR. N.G. BAZAN[2]

Department of Biology[1]
Centenary College of Louisiana

Neuroscience Center of Excellence[2]
Louisiana State University

Cyclooxygenase-2 (COX-2) catalyzes the synthesis of prostaglandins and is a pro-inflammatory effector as well as a regulator of cell functions. Several eye diseases, including diabetic retinopathy, glaucoma, and age-related macular degeneration, involve pro-inflammatory signaling. Upregulation of COX-2 by the pro-inflammatory cytokine interleukin-1β (IL-1β), oxidative stress, or TNF-α (tumor necrosis factor-α) has been reported. However, it is not clear how these pro-inflammatory events induce COX-2 gene expression. We have transfected in human retinal pigment epithelial cells (ARPE-19 cells) 5 deletion constructs of COX-2 promoter linked to a luciferase reporter gene. Using deletion mutants (1840, 1430, 830, 430, and 330) of COX-2 promoters induced by IL-1β, TNF-α, or oxidative-stress (OS), we identified regions responsible for these activators. In addition, we have found that the novel omega-3 fatty acid-derived mediator, neuroprotectin D1 (NPD1), down-regulates the expression of COX-2 promoter induced by IL-1β, TNF-α or OS-induced expression of COX-2 promoter constructs in RPE cells. This study elucidates mechanisms and targets that will help identify transcription factors that modulate NPD1 action on pro-inflammatory injury of the RPE and lead to cell survival under pathological conditions.

Social Science Oral Presentations

Weathering the Financial Storm: Is Your Mutual Fund Capable of Providing Good Returns During Tough Times?

JESSICA MARQUART

Frost School of Business
Centenary College of Louisiana

The purpose of this presentation involves evaluating mutual fund performance in light of the severe financial crisis the world has faced since 2008. *Smart Money, The Wall Street Journal Magazine,* in its February 2009 issue identifies 100 mutual funds that are supposed to be "great funds" for tough times. The research project focuses on evaluating performance of these mutual funds to determine what similarities they possess to help investors weather the financial storm we are currently dealing with in the investment arena. This research topic fits in the finance category of agency theory.

Hand-Held Faith: Discovering the Possibilities of Ubiquitous Evangelism through Mobile and Smart Phone Technology

MICHAEL JARBOE

Research Advisor: Dr. Kelly Weeks

Frost School of Business
Centenary College of Louisiana

"There's an App for that." It's the phrase taking the world by storm. Personal calendars, nutritional-diet plans, stock updates, weather reports, world maps, web access and a Starbucks locator: why look anywhere else? The mobile mindset is on the rise. Neilson (neilsonwire.com) predicts that by Christmas of 2011, one in two Americans will own a smart phone. As these trends soar, more institutions are "going mobile" to stay afloat in this competitive new field. The Christian church is at the forefront of this competition; streaming morning services, offering online biblical resources and creating digital missions are just a few evangelistic tools being used to reach the population. But what about the non-believers; those who've been hurt by unwelcoming elderly greeters, unkind looks of fellow congregants, or slandering sermons filled with politics, disrespect, and hate? "To reach people that no one is reaching, you have to do things that no one is doing," says Craig Rochelle, senior pastor of Life Church. tv in Oklahoma. Based on my research of people with different religious beliefs, ages, and occupations, I posed the question: can mobile devices close the gap between the global communication barriers of the gospel, allowing ubiquitous evangelism to be a reality?

Learning by Doing.....One Tax Return at a Time A Case Study of Community Service Benefits at Centenary College of Louisiana

STEPHANIE BEAUVAIS

Research Advisors: Dr. Helen Sikes & Dr. Barbara Davis

Frost School of Business
Centenary College of Louisiana

Prior research has identified the positive effects of cooperative learning styles and hands-on experiences in the classroom. The American Accounting Association's Education Change Commission (AAAECC) promotes the use of interactive learning styles and cooperative exercises in the classroom. The Accountants for Public Interest support volunteerism through pro bono accounting work as an integral factor and key to a positive post-graduation experience. Specifically, integrating accounting knowledge and tax research strategies with student community involvement increases a participant's communication and decision-making skills, professionalism, self-confidence, leadership development, commitment to lifelong learning through volunteerism and career satisfaction. For two years, Centenary College students have participated in a service project to prepare tax returns for members of the Centenary Community. This case study summarizes the implementation of a volunteer activity that allows Accounting students to electronically prepare Individual Federal and State tax returns. The project lasts ten weeks in the Spring and students that have completed Individual Income Tax, ACCT 311, can participate. The benefits of the program are identified and ideas for future

changes to this program are summarized. Pre- and Post-participation interviews present ideas for future improvements. Overall, the results are favorable for continued implementation of this growing application of active learning.

Guilty As Charged: An Analysis of the Honor System at Centenary College

QUINN LARWOOD

Research Advisor: Dr. Elizabeth Rankin

Frost School of Business
Centenary College of Louisiana

This paper examines the characteristics that contribute to the probability that a student who has been turned in to the Honor Court will be found guilty. Previous studies utilizing survey data of student self reports of cheating have been done. My study is unique in that it uses strictly empirical data gathered from the Honor Court database as well as the Registrar's office. Characteristics of each accused student from the last 3 years were examined in order to determine which of these traits contributed to the probability that they would be found guilty. An econometric analysis shows that students involved in greek life, minority students, and younger students are more likely to be found guilty if they are accused of an honor court violation.

Attractiveness Ratings of Typical and Atypical African-American features

KENNESHEA ALLUMS

Research Advisor: Dr. Matthew Weeks

Department of Psychology
Centenary College of Louisiana

This study seeks to understand African-American women's ideas of attractiveness. The study will will use attractiveness ratings of typical and atypical African-American features to assess what facial characteristics African-American women find more attractive. Participants will perform an implicit attitudes test using African-American photographs with a range of typical and atypical African-American features. Surveys were given to 28 African-American males and females ranging in ages from 18-74 concerning typical African-American features. Results from the survey show lips, hair, and nose as the most significant features of African-Americans. Photographs of African-American women have been gathered and will be used to create targets for the implicit attitudes test. Surveys will be distributed among African-American women, and the photographs will be rated for typicality of features, attractiveness, and how stereotypical the photograph is. The presentation will discuss the implications of these findings on individual conceptions of beauty.

Academic Dishonesty

ANNE ZAPCZYNSKI

Research Advisor: Dr. Amy Hammond

Department of Psychology
Centenary College of Louisiana

As academically dishonest behavior is prevalent among American college campuses, it is important to understand in what areas of academia this behavior occurs and informing students on what is defined as dishonest behavior. The current study examines the relationship of students' understanding and identification of what is defined as academically dishonest behavior and which forms of behavior are most prevalent. A survey presented nine short vignettes about "Sally" and her friends based on the twelve types of cheating as specified by McCabe & Trevino (1993). Participants answered questions regarding whether they had acted in similar ways as Sally or her friends and whether they considered the behavior as dishonest. Surveys were also given to faculty members acting as expert opinions to use for comparison. Participants who identified cheating behavior well, in comparison to the expert opinions, had higher GPAs, lower occurrences of cheating and believed it was not okay to cheat within or outside their chosen majors.

The Influence of Experience in a Visual Modality on Change Blindness

JOHN WEBB

Research Advisor: Dr. Amy Hammond

Department of Psychology
Centenary College of Louisiana

This paper is describing an experiment that is built to test the performance of subjects experienced in a visual modality and subjects not experienced in a visual modality on a flicker task, which is a measure of change blindness. In addition, their performance is measured on two subcategories of the flicker task: tasks with ASL (American Sign Language) images in them, and tasks without ASL images in them. The questions that this study addresses are ones of differences in perception caused by differing experiences. Which population will perform better? Will the ASL images cause the signing participants to perform quicker? Most importantly, does experience in a visual modality give an advantage when perceiving change which may or may not have meaning and context? The research to predict results is mixed, with studies providing data that indicates that the signing participants will be at an advantage (Bottari, 2008) or a disadvantage (Clark & Grosjean, 1982) on this task. The populations involved are undergraduate, non-signing students and signing, deaf participants. Each participant completed a number of flicker tasks and answered a questionnaire about visual imagery, as well as completed a short list of personal questions for use in gathering demographic data. This study offered several directions for further research, including duplicating the study with colorblind participants, and duplicating the study with blind participants (and sounds instead of images). These directions could tell us more about details of human sensory capacity.

Solidarity in Resistance: Hardcore Punk as Collective Action and Identity Construction

NICHOLAS AKINS

Research Advisor: Dr. Loren Demerath

Department of Sociology
Centenary College of Louisiana

This is a presentation of a study that has examined the subculture of hardcore punk. Hardcore punk is centered an aggressive style of music performance and appreciation. The music features lyrics that are critical of society and take strong public stances. Interviews with 20 men and women in the hardcore "scene" reveal that participants in this subculture share feelings of displacement prior to becoming involved in hardcore punk, a sense of unity when becoming involved, and an emphasis on tolerance and independent individualism. The findings are explained using theories of social conflict, risk, and solidarity.

Beauty Perceptions Among African-American Women

KENNESHEA ALLUMS

Research Advisor: Dr. Loren Demerath

Department of Sociology
Centenary College of Louisiana

This study seeks to understand the beauty ideals African-American women hold for themselves. Interviews were conducted with 12 African-American women ranging in ages from 20-77 across a range of educational levels and backgrounds. Informal conversations were also held in beauty shops patronized by African-American women. Among the patterns found in the data are that women who have gone to "natural" hair describe the experience as liberating for themselves, while being controversial among their family members. Women also noted their first experience receiving a relaxer as painful, but the compliments and acceptance from others was reassuring. A new category of "natural" also emerged through interviews, forcing a recognition of what is considered "good hair" by members of the African-American community as natural. Research and theory related to assimilation, oppression and resistance, and identity are used to explain the study's findings.

HUMANITIES ORAL PRESENTATIONS

PANIC BEHIND THE MASK: THE SPANISH INFLUENZA EPIDEMIC OF 1918

SARAH SAVAGE

Research Advisor: Dr. Sam Shepherd

Department of History and Political Science
Centenary College of Louisiana

In October 1918, the Spanish influenza epidemic that had ravaged Europe and major United States cities crept into New Orleans aboard ships arriving from the Caribbean and Europe. As the epidemic spread throughout the city, the New Orleans Board of Health closed schools, theaters, moving picture houses, saloons, dance halls, pool rooms, ice cream and soft drink parlors, churches, shopping centers, as well as prohibiting public weddings and funerals until mid-November when the death toll subsided. Before the epidemic ended in New Orleans, more than 3,000 New Orleanians would die and a total of 45,000 suffered from Spanish influenza. During October and early November 1918, flu masks replaced Mardi Gras masks as the epidemic created pandemonium within New Orleans, leaving the dead without funerals and the living without ice cream. Few historians have researched the Spanish influenza epidemic of 1918 and it remains "America's Forgotten Pandemic". This study is part of a growing body of research focusing on disease in New Orleans during the early twentieth century, and was collected through close examination of the *Times-Picayune* newspaper for October and November 1918.

ANGLO-SAXONS IN THE LOWLANDS, ULSTER, AND APPALACHIA: HISTORY AND "CELTIC" ROMANTICISM

SPENCER BOSTWICK

Research Advisor: Dr. Sam Shepherd

Department of History and Political Science
Centenary College of Louisiana

The notion of Scotland in history as the last Celtic realm fighting for freedom from Anglo-Saxon England is very popular, as much in the Southeastern United States as in Scotland its self. However, this romantic view obscures the fact that large numbers Saxon nobles and their tennats fled to the Lowlands after the Norman Conquest. They reestablished their line of kings and became increasingly distant and hostile to the Gaelic Highlanders. Norman England had serious political wars with the Saxon Lowlands but rarely touched the Highlands. In the Seventeenth Century, King James VI sent Lowlanders to Ulster to help surpress the natives. In the next century, Lowlanders and "Scots-Irish" came to America in huge numbers, where they were ever among the frontier settlers, supporters for American independence, and among the most hostile to Native Americans. Highlanders only came to America in small numbers, were usually loyalists, and often allies of the Creek and Chickasaw. In the popular mind however, all Scots

were Highlanders, anti-English because centuries of oppression, and allies of Native tribes because of a similar clan systems. This view is at odds with history and can only be reached by confusing two groups at odds with each other.

SISTER MARGARET MCCAFFEY: SHREVEPORT'S MOTHER THERESA

JANEANE GORCYCA

Research Advisor: Dr. Sam Shepherd

Department of History and Political Science
Centenary College of Louisiana

This dissertation examines the role of Sister Margret in the Shreveport community as a founder of many facilities that benefited the less fortunate. Sister Margret, a Catholic Nun, gave up her life to private vows, allowing herself to establish Christian Services in Shreveport. Christian Services encompasses a number of organizations, including; Hospitality House, Martin Luther King Health Center, Mother Stewart House, and Herbert House. These organizations were funded with private donations. However her political views and stances during the Gulf War halted her form of fundraising, causing huge devastation to the community programs. Thus she set out on another task, organizing the Christian Services Telethon, a form of funding for her many services. The scope of the work explains her social and political views and describes what motivated Sister Margret to give up everything she had to help the poor. The entirety of her time spent in Shreveport until her death, is examined through newspaper articles, and her personal journals. Giving an inside look in to the life of the woman who changed a whole area in Shreveport.

FREIRE AND CONE: DEVELOPING A LIBERATION THEOLOGY CURRICULAR RESOURCE TO RAISE CRITICAL CONSCIOUSNESS THROUGH A NOT-FOR-PROFIT AGENCY

CHRISTENE PAXTON

Research Advisor: Dr. David Otto

Department of Religious Studies
Centenary College of Louisiana

The Pool of Siloam, a not-for-profit church related medical ministry in Shreveport, seeks to provide medical care to the uninsured based on their income. Forty percent of the patients who receive care from the clinic suffer from diabetes. Combining the black liberation theology of James H. Cone with a model of education proposed by Brazilian educator, Paulo Freire, this paper encourages the Pool of Siloam to adopt a health education program for African-American women suffering from Type II diabetes. The program will attempt to raise what Paulo Freire called "critical consciousness" that allow these women to perceive their own social and economic oppression and seek to act against those forces that keep them oppressed and unhealthy. Section Two of my paper reviews the relevant literature. Section Three describes the process of developing a curricular resource while Section Four offers a lesson plan for the first session of a health education program for these women designed to promote the formation of critical consciousness. In the final section, I will

explore possible objections to such a project as well as how future sessions might function.

BUILDING BRIDGES THROUGH LITERATURE: C.S. LEWIS AND THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

MARISSA TEAUSEAU

Research Advisors: Dr. Ross Smith[1] & Dr. David Otto[2]

[1]Hurley School of Music
[2]Department of Religious Studies
Centenary College of Louisiana

The Church of Jesus Christ of Latter-Day Saints (LDS) prides itself on its booming growth in membership numbers, financial stability, and world-wide influence. As the first world religion created before scholars' eyes, the church deserves research and understanding, but instead most people no little or nothing about true Latter-Day Saint doctrine and beliefs. Latter-Day Saints seek to share their beliefs, often using the written works of non- LDS writers. C.S. Lewis, the British novelist and lay theologian, has been referenced more than any other non-Latter-Day Saint writer. This research paper will investigate both the reasons behind the usage of Lewis' work as well as how his writings have been adapted to promote the message of the nature of the LDS. After a review of the relevant literature, I will use a form of textual analysis to suggest possible responses to the two aforementioned questions. I will conclude my work with a suggestion for further research on the topic.

THE BEGINNING OF A REVOLUTION: PROPHETIC VOICES OF THE AMERICAN FEMINIST MOVEMENT 1800-1920

RACHEL STEVENS

Research Advisors: Dr. Sam Shepherd[1] & Dr. David Otto[2]

[1]Department of History and Political Science
[2]Department of Religious Studies
Centenary College of Louisiana

The period from 1790 to 1840 in the United States experienced so much religious revivalism that many historians designate it the Second Great Awakening. Millennialism, a central theme of the movement, combined with a belief that America was hand-picked by God to fulfill a great mission gave urgency to bringing about God's kingdom on Earth. Millennialists became increasingly dissatisfied with the world they inhabited and strove to radically alter it. Once women became fully ensconced in the church, they became more and more aware of the injustices surrounding them. Three prominent leaders in the movement exemplify the millennialist spirit of the Second Great Awakening in their work for women's rights. Antoinette Brown Blackwell, fighting for abolitionism, Frances Willard, fighting for temperance, and Alice Paul, fighting for suffrage and equal rights, all felt called to their work and devoted significant portions of their lives to the greater cause of Feminism, even when it ostracized them from friends and family. Their urgency and devotion, coupled with a mindset of being divinely inspired, makes their work within first wave feminism millennial.

FROM MAIN ACTOR TO MATRON: HOW THE CHARACTER REBEKAH IS HELLENIZED BY JOSEPHUS IN ANTIQUITIES OF THE JEWS

RACHEL MCCONNELL-SWITZER

Research Advisors: Dr. Susan Brayford & Dr. David Otto

Department of Religious Studies
Centenary College of Louisiana

Scholars of the Hebrew Bible, when looking at the narratives found in Genesis, note the active role the character Rebekah plays, when compared to other female characters in the text. She takes charge to water the camels of Abraham (Gen 24: 20), issues an invitation for his servant to spend the night at her father's home (without first asking permission of her father) and assists her son Jacob in tricking his ailing father, Isaac, out of his older brother's rightful blessing (Gen. 27). Yet, when one reads the writings of Josephus, a first century CE Jewish historian, the character Rebekah appears more passive. This project will explore the two different cultures that gave rise to these two separate accounts and focus on the idea of gender construction as a primary filter through which the story of Rebekah is told. Section Two of my paper will explore the relevant research while Section Three will describe the exegetical strategy I will use. Section Four will put forth the case that Josephus intentionally hellenized (made Greek) Rebekah to appease his readership's expectations of womanhood. I will conclude with implications of the study and my plans for further research.

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